

AMENDMENTS TO THE SPECIFICATION:

Note: paragraph numbers are represented here with the same serial number designations appearing in the original P.A.S.A.T. electronic file. Please replace
5 paragraphs [0002], [0030], [0039], [0045], [0046], and [0047] as follows:

[0002]

For simplicity of further discussion, and because the most common product roll dispensed is paper or similar nonwoven web material, the terms "paper", "paper towel"
10 and "paper towel roll" will be used hereinafter instead of "product" and "product roll". However, it should be understood that the present invention can be adapted to virtually any spiral-wound sheet product.

[0030]

15 Key features of the invention, enabling hands-free control of both paper advance and cutting, are two separate infrared light emitters and sensors with infrared (IR) beams to be interrupted by human hands. Optical sensor recesses are therefore provided at the lower front of the cabinet 1_within a sensor housing 16: an advance recess 4 on the right side, and a cut recess 5 on the left. The beams of infrared light are emitted from a
20 sensor emitter box 6, one toward the right from advance emitter 7 across recess 4 to advance command detector 8, and one toward the left from cut emitter 9 across recess 5 to cut command detector 10. In this discussion, the advance emitter/sensor pair is on the right, but the right or left placement of the two recesses and emitter/sensor pairs is immaterial and interchangeable. It is also well to note that this invention can be
25 constructed and operate equally well if left and right are swapped in all parts of this specification and drawings, and that handedness is not meant to be a limitation.

[0039]

Door 2 is mounted pivotably on cabinet 1 by pin 404 and, when open, is held in that position by its weight. It is held in the closed position by spring 405 stretching between
5 pin 406 on cabinet 1 and pin 407 on door 2. These parts, as shown on the left side of the cabinet 1 in this figure, are duplicated symmetrically on the opposite side of the cabinet even though not visible in this view.

[0045]

10 After paper advance stops, the user may start the cutting cycle, as shown in Figure 8, at any time. When the cutting cycle begins, cutter assembly 208 leaves its parked position and moves in the out-of-the-page direction, bringing upper cutter drive roller 302 into contact with upper clamping plate 204 and lower drive roller 303 into contact with
15 lower front clamping plate 12. The clamping plates are thus pushed to the left in this view. The paper sheet 210 is clamped both above and below circular blade 301, and it begins to be cut as circular blade 301 revolves against edge 318 of fixed blade 207. An important feature of this invention is the dual clamping of the paper along its entire width both above and below the cut, which creates a repeatably clean and straight cut.
Another important feature of the invention is that the diameter of circular blade ~~310~~ 301
20 is greater than either drive roller 302 or 303, causing the peripheral speed of circular blade ~~310~~ 301 to be greater than the translational speed of the cutter assembly along fixed blade 207. This causes the paper fibers to be sliced through during cutting as well as merely being cut by simple shear. It also creates some self-sharpening action of the circular blade against the fixed blade.

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[0046]

Note that all of the parts being pressed to the left by cutter assembly 208 pivot except for fixed blade 207. This means that the force exerted from right to left in this view by spring-loaded traverse rod 306 is met principally by the reaction of fixed blade 207 against upper drive roller 302. Thus the entire cutter assembly 208 is urged toward the clockwise direction in this view, but is stopped principally by the periphery of circular blade 301 pressing upwardly against fixed blade edge 318. This further assures cleanliness of cut. Importantly, it has been found by experimentation that cutter maintenance is minimized when the circular blade 301 is made of softer metal than fixed blade 207, specifically when the hardness difference is at least 4 Rockwell C units.

Specifically, if fixed blade 207 is harder than circular blade 301 by at least this amount, it will tend to sharpen circular blade 301 every time circular blade 301 passes along fixed blade 207.

[0047]

After the cutting cycle is finished, cutter assembly 208 stops near the center of the paper sheet and maintains the clamping plates 204, 12, and 13 in the positions shown until the user pulls the cut portion of the paper out of the dispenser. When the paper sheet is withdrawn from between lower rear clamping plate 13 and lower front clamping plate 12, lower rear clamping plate 13 pivots slightly clockwise of its own weight into direct contact with lower front clamping plate 12. A small electric current is thus permitted to flow between the two plates, triggering the cut motor (not shown) to move the cutter assembly 208 back to its parked position. The weight of the clamping plates 204 and 12 pivot them back to their positions in Figs. 6 and 7 by gravity[.], and lower rear clamping plate 13 is again held farther open by lower drive roller 303.